C-weighted Day-Night Average Sound Level (CDNL)

People often forget the need to assess the risk from any impulsive noise (very sudden short-lived noises, bangs and crashes). The C-weighting is used for this to give us the peak sound pressure for the impulsive noise that the human ear is exposed to in decibels (dB).

Table 1. Land use zones from AR 200-1.

Noise Zone	%HA	CDNL	Compatible for residential use (schools, housing, and medical)
Zone I	< 15%	<65	Yes
Zone II	15-39%	65-75	Not normally recommended
Zone III	>39%	>75	Not recommended

Table 2. Pater complaint risk criteria.

Risk of noise complaints	Single Event ZPk (dB)
Low	< 115
Moderate	115-130
High	> 130
Risk of physiological damage to unprotected human ears and structural damage claims	> 140

Source: *An Investigation of Community Attitudes Toward Blast Noise*, US Army Corps of Engineers, 2012

**Every 10 dB increase in sound level doubles the precieved noise level.
A sound level of 70dB is twice as loud as a sound level of 60dB
and a sound level of 80dB is 4 times louder than a sound level of 60dB**

Decibals (dB)	Examples	Home & Yard Appliances	Workshop & Construction
0	Healthy Hearing Threshold		
10	A Pin Dropping		
19	Mitsubishi inside unit running		
20	Rustling Leaves		
30	Whisper / Library		
40	Babbling Brook	Computer	
50	Light Traffic	Refrigerator/ Rainfall	
58	Mitsubishi Outside A/C Unit Running	Quietest Condensing Unit on the Market Today!	
60	Conversational Speech	Air Conditioner	
70	Shower	Dishwasher	
75	Toilet Flushing	Vacuum Cleaner	
80	Alarm Clock	Garbage Disposal	
85	Passing Diesel Truck	Snow Blower	
90	Squeeze Toy	Lawn Mower	Arc Welder
90-95	Level at Which Sustained Exposure May Result in Hearing Loss!		
95	Inside Subway Car	Food Processor	Belt Sander
100	Motorcycle (Riding)		Handheld Drill
105	Sporting Event		Table Saw
110	Rock Band		Jackhammer
115	Emergency Vehicle Siren		Riveter
120	Thunderclap		Oxygen Torch
125	Balloon Popping		
130	Peak Stadium Crowd Noise		
135	Air Raid Siren		
140	Jet Engine at Takeoff		
140 and Up	Even Short Term Exposure can Cause Permanent Damage - Loudest Recommended Exposure WITH Hearing Protection		
145	Firecracker		
150	Fighter Jet Launch		
155	Cap Gun		
160	Shotgun		
165	.357 Magnum Revolver		
170	Safety Airbag		
175	Howitzer Cannon		
180	Rocket launch		
...			
194	Sound Waves Become Shock Waves	Loudest Possible Sound	

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